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TM01/1116

EXAMINER

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| ART UNIT | PAPER NUMBER |
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2186

DATE MAILED: 11/16/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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| Office Action Summary | Application No. 09/164,898 | Applicant(s) Akiyama, James |
| | Examiner Pierre Vital | Group Art Unit 2186 |

Responsive to communication(s) filed on Sep 8, 2000

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle* 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

Claim(s) 1-15 is/are pending in the application.
Of the above, claim(s) 4-6 is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-3 and 7-15 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on Sep 8, 2000 is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

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DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed September 8, 2000 in response to PTO Office Action dated June 13, 2000. The applicant's remarks and amendment to the specification and/or the claims were considered with the results that follow.
2. Claims 1-15 have been presented for examination in this application. In response to the last Office Action, claims 1, 7-11 and 15 have been amended. Claims 4-6 have been canceled. No claims have been added.
3. The rejection of claims 1-3 and 7-15 as in the Office Action mailed June 13, 2000 is respectfully maintained and reiterated below for Applicant's convenience.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1, 2, 7-9, 11-13, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson (US5,905,910).

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As per claims 1, 7, 8, 11, 12 and 15, Anderson teaches a system for multi-threaded disk drive interrupt processing wherein the first and second disk drives 110 and 112 may be integrated device electronics (IDE) disk drives wherein the disk drive itself contains many of the required interface components; with IDE disk drives, a single interface coupled to the bus system 108 is capable of operating multiple IDE disk drives [Col.5, lines 28-33]; it is the instructions in the BIOS 106 itself that controls the positioning of the read/write head in the first disk drive 110 and the second disk drive 112 [Col.8, lines 12-15]; in the disk striping embodiment of the system 100, a data file is apportioned into blocks that are alternately stored (interleaved) on the first drive 110 and the second drive 112; the system 100 advantageously allows the BIOS 106 to issue commands to both the first disk drive 110 and the second disk drive 112 to allow each of the first and second disk drives to simultaneously (parallel) perform the consuming task of positioning the read/write head at the proper location on the disk drive [Col.8, lines 62-67; Col.9, lines 1-3]; with respect to the disk striping aspect of the system 100, the operating system behaves as if there is a single disk drive (single physical drive) rather than the first disk drive 110 and the second disk drive 112 [Col.7, lines 60-63].

As per claims 2, 9 and 13, Anderson teaches this process is repeated with data transfers alternating between the first disk drive 110 and the second disk drive 112 [Col.12, lines 18-20].

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US5,905,910) and Jenkins (US4,047,157).

As per claims 3, 10 and 14, Anderson teaches the BIOS 106 contains instructions, which the CPU 102 executes, to transfer data or commands to the internal registers of the first disk drive 110; for example, the disk transfer command to the first disk drive 110 will include data such as the physical location on the first disk drive from which the data file will be read (system request); the BIOS 106 also contains instructions to issue commands to the second disk drive 112 in preparation for a data transfer with the second disk drive [Col.8, lines 54-61]. However, Anderson fails to specifically teach that the system request includes a sector bit string, a head bit string, a track bit string and a driver bit as recited in the claims.

Jenkins teaches a controller for use in a data processing system wherein in the track/sector register 146 Track Address and Sector Address bit positions identify, respectively, the track and sector on a disk to be involved in a transfer; in a fixed-head unit, the Track Address bits identify a specific head [Col.20, lines 38-42]; a Write signal, produced in response to the function bits, enables drivers 297 to load data onto the data set 101 [Col.26, lines 26-28].

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It would have been obvious to one of ordinary skill in the art, having the teachings of Anderson and Jenkins before him at the time the invention was made, to modify the system taught by Anderson to include sector bit string, head bit string, track bit string and driver bit in the system request because it would have improved processing speeds and memory access times by providing the system identification information for the physical location on the drive from which the data file will be read or written as taught by Jenkins.

Response to Arguments

8. Applicant's arguments filed September 8, 2000 have been fully considered but they are not persuasive.

As to the remarks, Applicant asserted that:

- (a) The prior art of record does not anticipate the present invention because neither Anderson nor Jenkins discloses the use of a striping disk controller;
- (b) Anderson does not anticipate the present invention because Anderson does not teach an apparatus with a means for receiving a system request intended for a single physical drive;
- (c) Jenkins does not discuss using a controller to cause data to be communicated between a bus and two disk drives in an interleaved form substantially in parallel.

Examiner respectfully traverses Applicant's remarks for the following reasons:

With respect to (a), Examiner agrees with Applicant that the prior art of record does not specifically disclose the use of a disk striping controller; noting the equivalent concept being

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disclosed by Anderson. In fact, Anderson discloses with two disk drives and multi-threaded interrupt processing, a data file can be broken up into multiple portions, with alternating portions being stored on each respective disk drive. This process is referred to herein as disk striping [Col.4, Lines 15-20]; the first application program generates the first disk data transfer command to control data transfer between the first disk drive and the first application program, while the second application program generate the second disk data transfer command to control data transfer between the second disk drive and the second application program while the first disk drive is processing the first data transfer command [Col.2, Lines 17-24].

With respect to (b), Examiner would like to emphasize that the system request disclosed by Anderson is the same as that disclosed by Applicant. Anderson discloses With respect to the disk striping aspect of the system 100, the operating system behaves as if there is a single disk drive, rather than the first disk drive 110 and the second disk drive 112. Thus, from the point of view of the operating system, there is a single large disk drive, rather than two smaller disk drives [Col.7, Lines 60-65].

With respect to (c), Examiner totally agrees with Applicant that Jenkins does not discuss using a controller to cause data to be communicated between a bus and two disk drives in an interleaved form substantially in parallel. However, Examiner would like to point out that this feature is clearly disclosed by Anderson. In fact, Anderson discloses in the disk striping embodiment of the system 100, a data file is apportioned into blocks that are alternately stored (interleaved) on the first drive 110 and the second drive 112; the system 100 advantageously

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allows the BIOS 106 to issue commands to both the first disk drive 110 and the second disk drive 112 to allow each of the first and second disk drives to simultaneously (parallel) perform the consuming task of positioning the read/write head at the proper location on the disk drive [Col.8, lines 62-67; Col.9, lines 1-3].

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Monday to Friday from 8:30 A.M. to 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim, can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-9731.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9000.

Reginald G. Bragdon
REGINALD G. BRAGDON
PRIMARY EXAMINER

MK/pmv

November 7, 2000